

WHAT IS CLAIMED IS:

1. An oscillator comprising:

a dielectric substrate having a microstrip-line resonator and a coupling line coupled with  
the microstrip-line resonator formed thereon;

an active device connected to the coupling line and constituting an oscillating circuit

5 together with the microstrip-line resonator; and

a package substrate on which the dielectric substrate is mounted and which has a smaller  
dielectric constant than the dielectric substrate,

wherein the active device is mounted on the package substrate.

2. An oscillator according to Claim 1, further comprising a frequency-variable device

mounted on the package substrate and connected to a said oscillating circuit.

3. An oscillator comprising:

a dielectric substrate having a microstrip-line resonator and a coupling line coupled with  
the microstrip-line resonator formed thereon;

an active device connected to the coupling line and constituting an oscillating circuit

5 together with the microstrip-line resonator; and

a package substrate on which the dielectric substrate is mounted and which has a smaller  
dielectric constant than the dielectric substrate,

wherein the active device is mounted on the dielectric substrate.

4. An oscillator according to Claim 3, further comprising a frequency-variable device mounted on the dielectric substrate and connected to said oscillating circuit.

5. An oscillator according to one of Claims 1 to 4, further comprising a bias line and a bias resistor both for applying a bias voltage to the active device which are formed on the dielectric substrate.

6. An oscillator according to one of Claims 1 to 4, wherein the microstrip-line resonator and the coupling line are formed at the same time.

7. An oscillator according to Claim 6, wherein the microstrip-line resonator and the coupling line are thin-film electrodes.

8. An oscillator according to Claim 7, wherein the microstrip-line resonator and the coupling line are formed by photolithography.

9. An oscillator according to Claim 6, wherein the microstrip-line resonator and the coupling line are thick-film-electrodes.

10. An oscillator according to Claim 9, wherein the microstrip-line resonator and the coupling line are formed by screen printing.

11. An oscillator according to Claim 1 or Claim 3, wherein the dielectric substrate is mounted on the package substrate by die bonding.
12. An oscillator according to Claim 11, wherein the dielectric substrate and the package substrate are electrically connected by wire bonding.
13. An oscillator according to Claim 1 or Claim 3, wherein the dielectric substrate is mounted on the package substrate by flip-chip mounting.
14. An oscillator according to Claim 1 or Claim 3, wherein the dielectric substrate has a relative permittivity of 20 or more.
15. An oscillator according to Claim 14, wherein the temperature characteristic of the dielectric substrate is specified such that the temperature drift of the resonant frequency of the microstrip-line resonator is within 0.1% of the resonant frequency in a temperature range of 0°C to 70°C.
16. An oscillator according to Claim 1 or Claim 3, wherein the temperature characteristic of the dielectric substrate is specified such that the temperature drift of the resonant frequency of the microstrip-line resonator is within 0.1% of the resonant frequency in a temperature range of 0°C to 70°C.